State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

May 23, 2008

Board of Land
and Natural Resources
Honolulu, Hawaii

Request for Authorization and Approval to Issue a Papahānaumokuākea Marine National Monument Research Permit to Dr. Evelyn Cox, University of Hawaii, for Access to State Waters to Conduct Coral and Fish Disease Research Activities.

The Division of Aquatic Resources (DAR) hereby submits a request for your authorization and approval for issuance of a Papahānaumokuākea Marine National Monument research permit to Dr. Evelyn Cox, assistant professor, University of Hawaii, pursuant to § 187A-6, Hawaii Revised Statutes (HRS), chapter13-60.5, Hawaii Administrative Rules (HAR), and all other applicable laws and regulations.

The research permit, as described below, would allow entry and research activities to occur in the Papahānaumokuākea Marine National Monument (Monument), including the NWHI State Marine Refuge and the waters (0-3 nautical miles) surrounding the following sites:

- Nihoa Island,
- Necker Island (Mokumanamana),
- French Frigate Shoals,
- Gardner Pinnacles,
- Maro Reef
- Laysan Island,
- Lisianski Island, Neva Shoal,
- Pearl and Hermes Atoll,
- Kure Atoll State Seabird Sanctuary

The activities covered under this permit would occur from June 1, 2008 through September 30, 2008.

The proposed activities are a renewal of work previously permitted and conducted in the Monument.

INTENDED ACTIVITIES

The purpose of these activities is to examine coral and fish disease occurring within the Monument.

Coral disease

The objectives of the activities are to

- determine the incidence (change in disease levels through time) of coral disease at several sites within the Monument;
- document the damage from disease of Acropora white syndrome and Acropora growth anomalies; and
- test a method for managing damage from Acropora growth anomalies.

To conduct this research, the applicant would survey reefs for coral disease, mark and photograph individual colonies exhibiting signs of disease, and surgically remove growth anomalies off of corals to determine the efficacy of this method for managing this disease.

Disease surveys

Re-survey of established sites throughout the Monument would follow established protocol. Two 25 m lines would be laid out along the permanent pins. A diver would then swim over the lines during which all corals within one half meter of either side of the transect lines would be identified to species, counted, and assigned to a size class. In the same manner, a second diver would swim over the lines and examine all corals for signs of bleaching or disease. For corals exhibiting disease, a general description of the condition would be recorded, the coral would be photographed and a specimen would be collected for histopathological examination. Colonies tagged in 2005 or 2006 would be relocated, remarked and photographed. Any lost pins would be replaced.

Growth removal

Colonies of *Acropora cytherea* with growth anomalies and a nearest neighbor of similar size would be measured (length and width of each tier), photographed (with a ruler) and tagged. Half of the colonies with growth anomalies would undergo surgical removal of the tumors with hammer and chisel. All growth anomalies would be placed in sealed bags at depth and transported to the NOAA ship for processing. Colonies would be re-examined in the future to look for differences in growth between affected, treated, and control colonies.

Fish disease

The objectives of the activities are to

- determine the affect of disease on body condition of fish;
- collect tissue for further analysis to determine if viruses are associated with the disease; and
- determine whether a nematode infection was introduced into the Hawaiian ecosystem with the introduction of taape.

For this research, target fish species would be collected by spear, placed on ice, and transported to the ship for examination. Kole with skin cancer would be photographed and necropsied. Taape and several species of native goatfish would be examined for disease (nematode infection). The applicant is requesting to collect a maximum of 20-30 fish per species (depending on species) per island, and anticipates working at 4-5 of the islands during the cruise.

Fish and fish parasites would be shared with Brian Bowen's lab for use in molecular and life history studies.

It should be noted that the original request to freeze diseased coral and fish samples has been withdrawn. In addition, the applicant is requesting to send coral, fish, and parasite samples out of state for identification and processing.

This research would provide information as to the health status of Monument reefs, the ability to predict damage from coral disease through time, and a potential method to control Acropora growth anomalies. The fish disease work would provide information about the affects of skin cancer on Kole, as well as the introduction and spreading rate of the nematode infection.

The activities described above may require the following regulated activities to occur in State waters:

- ☒ Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any living or nonliving monument resource
- ☒ Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands
- ☒ Anchoring a vessel
- ☒ Touching coral, living or dead
- ☒ Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument
- ☒ Swimming, snorkeling, or closed or open circuit SCUBA diving within any Special Preservation Area or Midway Atoll Special Management Area

REVIEW PROCESS:

The permit application was sent out for review and comment to the following scientific entities: Hawaii Division of Aquatic Resources, Hawaii Division of Forestry and Wildlife, Papahānaumokuākea Marine National Monument (NOAA/NOS), NOAA Pacific Islands Regional Office (NOAA-PIRO), and United States Fish and Wildlife Service Pacific Islands NW Refuge Complex Office. The Office of Hawaiian Affairs (OHA), and the Kaho'olawe Island Reserve Commission (KIRC) were also consulted.

Comments received from the scientific community are summarized as follows:

Scientific reviews support the acceptance of this application.

Concerns raised were:

1. What protocols the applicant would be following to ensure the safe storage and transport of the diseased coral and fish she is requesting to collect
2. Additional information requested to show that removal of growth anomalies could be conducted safely and would not increase the spread of disease

3. What activities would be conducted on board the ship vs. what would be transported back to a lab for future processing

4. If the request by the applicant to send samples out of state for identification and processing is allowable

Comments received from the Native Hawaiian community are summarized as follows:

Cultural reviews support the acceptance of this application.

No concerns were raised, but the following suggestion was made:

5. A ho'o kupu, Wai (fresh water) or awa (liquid form) should be offered at the site of first sampling.

Additional reviews and permit history:

Are there other relevant/necessary permits or environmental reviews that have or will be issued with regard to this project? (e.g. MMPA, ESA, EA) Yes ☒ No ☐
If so, please list or explain:

- The proposed activities are in compliance with the National Environmental Policy Act.

Has Applicant been granted a permit from the State in the past? Yes ☐ No ☒
If so, please summarize past permits:

- However, the proposed work described in this submittal is a continuation of activities conducted under permit DLNR/NWHI/06R008, issued to Greta Aeby in 2006.

Have there been any a) violations: Yes ☐ No ☒
b) Late/incomplete post-activity reports: Yes ☐ No ☒

Are there any other relevant concerns from previous permits? Yes ☒ No ☐

The 2006 state permit, referenced above, resulted in a violation against then-applicant Greta Aeby, who is currently listed as field PI for the proposed 2008 activities.

RESPONSE:

1. DAR and Monument staff have been working with HIMB researchers to address staff concerns and develop a Monument transport protocol. Currently, the protocol is subject to external peer review. The results of this review will be known by the May 23rd Land Board meeting. The method of storage and transport of diseased coral and fish being proposed by the applicant would be addressed in the Monument transport protocol.

2. The Applicant states that numerous Acropora growth anomalies (AGAs) have been removed for histological analysis during the past several years and it has been found that they can be removed easily and cleanly. Following past removals, no noticeable changes in prevalence of AGAs on corals or reef areas were observed during subsequent cruises. The risk of increased disease spread is exceedingly small as the tumors are easily and completely removed and would be bagged immediately upon removal. The tumors are situated on the tops of table corals, completely exposed to the environment. If this disease is infectious, then the surrounding corals and reefs have already been exposed to the pathogen, and removal actually minimizes the potential chance for spread of this disease

3. The Applicant states that:
   - Taape and goatfish (healthy fish) would be double bagged, labeled and placed in a labeled freezer container for transport onboard the ship, (following the 2008 PMNM biological sample transport protocol). No other work will be done on taape or goatfish onboard the ship. All follow-up lab work will be conducted at the BSL2 laboratory at HIMB.
   - Kole (diseased fish) would be weighed, measured and necropsied onboard the ship. Samples of skin or other tissues would be fixed in 10% formalin or gluteraldehyde. The remaining tissue would be sterilized in 10% Clorox, stored frozen and transported to HIMB for further sterilization (autoclaved) and disposal.
   - Coral samples would be placed into small labeled plastic jars of fixative (Z-fix), placed in Ziploc bags and transported in closed containers following the 2008 PMNM biological sample transport protocol. This fixation would occur on the Hiialakai.

4. DAR notes that no specimens may leave the possession of the State of Hawaii without a Material Transfer Agreement in place. An updated MTA is currently under development by the Co-Trustee agencies.

5. A cultural briefing was given to HIMB staff and researchers by the cultural reviewer who made this request. That briefing included a discussion on how best to incorporate and implement this practice into Monument activities that require the taking of samples.

STAFF OPINION:

DAR staff is of the opinion that the Applicant has properly demonstrated valid justifications for his application and, conditional on development of a peer-reviewed Monument transport protocol, should be allowed to enter the NWHI State waters and to conduct the activities therein as specified in the application with the following special instructions and conditions, which are in addition to the Papahānaumokuākea Marine National Monument Conservation and Management Permit General Conditions. The following special conditions have been vetted through the legal counsel of the Co-Trustee agencies.

1. This permit is not to be used for nor does it authorize the sale of collected organisms. Under this permit, the authorized activities must be for noncommercial purposes not involving the use or sale of any organism, by-products, or materials collected within the Monument for obtaining patent or intellectual property rights.

2. The permittee may not convey, transfer, or distribute, in any fashion (including, but not limited to, selling, trading, giving, or loaning) any coral, live rock, or organism collected under this permit without the express written permission of the Co-Trustees.

3. To prevent introduction of disease or the unintended transport of live organisms, the permittee must comply with the disease and transport protocols attached to this permit.

4. Tenders and small vessels must be equipped with engines that meet EPA emissions requirements.

5. Refueling of tenders and all small vessels must be done at the support ships and outside the confines of lagoons or near-shore waters in the State Marine Refuge

6. No fishing is allowed in State Waters except as authorized under State law for subsistence, traditional and customary practices by Native Hawaiians.

MONUMENT MANAGEMENT BOARD OPINION:

The MMB is of the opinion that the Applicant has met nine of the ten findings of Presidential Proclamation 8031. Whether the Applicant has met the 10th finding ("There are no other factors that would make the issuance of a permit for the activity inappropriate") is a policy determination that remains to be made before the permit is issued. The federal MMB representatives understand that the field PI on this permit application has a previous violation in state waters. Additionally, they recognize that there is a state administrative rule related to violations and the issuance of permits. Therefore, the federal representatives recognize the BLNR's role in determining how to apply the rule in this instance. OHA supports the research proposed in this application. If all findings are met, the MMB is of the opinion that this activity, conditional on development of a peer-reviewed Monument transport protocol, may be conducted subject to completion of all compliance requirements. The MMB concurs with the special conditions recommended by DAR staff.

RECOMMENDATION:

"That the Board authorize and approve, with stated conditions, a Research Permit to Evelyn Cox, University of Hawaii."

Respectfully submitted,

DAN POLHEMUS

Administrator

APPROVED FOR SUBMITTAL

LAURA H. THIELEN
Chairperson